HOME ECONOMICS

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XI. THE COOKING OF FOOD—PROTEIDS

THE application of heat to food materials is a science not yet well understood. In spite of all we say to-day about scientific cooking, the most accurate work we can do falls far short of the exactness of the laboratory methods in such sciences as chemistry or physics. This is true because of our ignorance of the nature of much of the material with which we have to do. The constituents of our foods are among the most complex substances known, and comparatively little has been done to investigate them. We know that heat produces a change in the gluten of our bread, but the opinions of experts differ greatly in regard to the character of this change. The science of cookery, consequently, is still in its infancy, whatever may be true of the art. Yet we aim at certain definite ends in the cooking of our food, and these we may reasonably expect to attain.

We cook to render food more digestible, more palatable, and more safe. It is true that sometimes one of these ends must be sacrificed to the others. Then we must choose the most important.

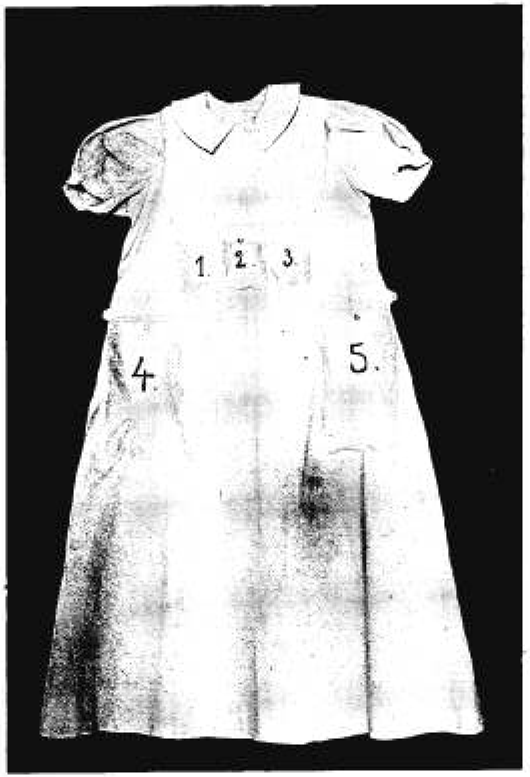
In our cooking of food containing a large proportion of proteids we often decrease, rather than increase, the digestibility, but the gain in flavor and in safety more than compensates for the slight loss in this respect, provided we make the loss as little as possible.

The effect of heat upon a typical proteid is well illustrated by a simple experiment. Fill a test-tube to about one-third of its capacity with white of egg and immerse it in a dish of water. Suspend a thermometer in the test-tube and heat the water slowly to boiling. The temperature at which certain changes in the egg take place may be easily noted. At about 140° F. a white, thread-like appearance is seen; gradually the cloudiness increases, until at 160° F. the egg is opaque and thick, but still soft. This soft, creamy condition continues till the thermometer registers about 180° F. Above this temperature the egg grows harder, and when the water is allowed to boil for a few moments the egg becomes a tough, horny mass, even although its own temperature does not quite reach the boiling-point. An examination of this hardened albumen will readily convince one that the digestive juices cannot act upon it so readily as upon the albumen in the softer, more tender condition. One factor in the digestibility of food is undoubtedly its finely divided state, and this tough, almost horny, substance would need to be masticated more thoroughly than is often done to insure this condition.

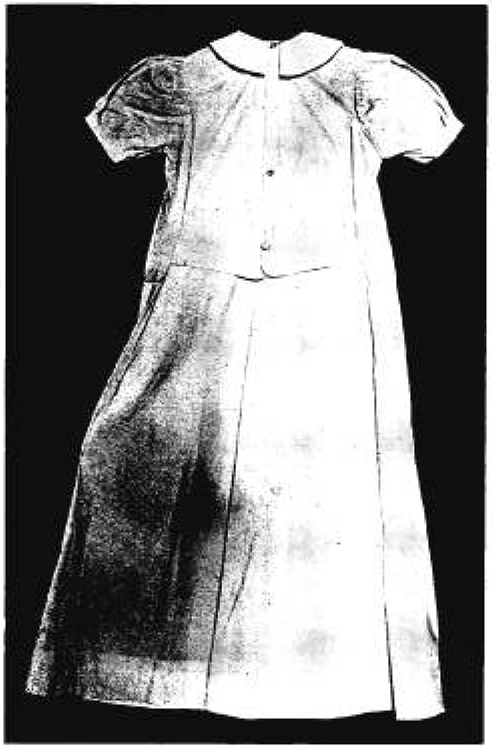
The hardening effect of heat is well shown also in the toughening of milk curd and of cheese. In preparing what is known as cottage cheese, if the temperature of the sour milk is allowed to become too high a tough, hard curd is produced instead of the tender, friable substance yielded at the lower temperature. In making a Welsh rarebit one often has an illustration of the same change—a little too much heat, and the cheese becomes stringy, tough, and hard.

A similar result, although not so marked, is obtained when meat is cooked at a high temperature. A piece of beef may be boiled until it falls to pieces because the connective tissue has been changed to gelatin and dissolved, while each muscle fibre, instead of being tender and juicy, is dry and tough. This principle of the low cooking temperature for proteids is an important one and should be applied whenever possible. An egg, to be poached, should be dropped into water just below the boiling-point rather than into boiling water. Creamy and scrambled eggs as well as boiled custard should be cooked over hot water and care taken that the heat is neither too great nor too long continued. Fried eggs are necessarily cooked at so high a temperature as to lessen materially their digestibility. A "boiled egg" (more properly called an egg cooked in water) may be prepared either by putting the egg into boiling water, removing the dish immediately from the heat, and allowing it to stand for ten minutes; or, the egg may be put into cold water, the temperature brought to 180° F. and maintained there for six minutes. A few experiments with a thermometer will enable one to recognize this temperature quite accurately by physical appearances merely. The egg at this temperature becomes thickly coated with fine bubbles. If the egg is desired hard, the cooking by either method must be continued some minutes longer. Even a half hour at 180° F. leaves the egg, though thoroughly cooked, of a creamy consistency throughout. Of course, there are cases when this ideal condition must be sacrificed to convenience. An egg to be used in garnishing or to be put into the lunch-box must be actually boiled.

A third method of cooking an egg in water is to put the egg into cold water and bring the water to the boiling-point, removing the egg immediately, before the heat has had time to penetrate it too thoroughly. The first of the three methods is the least certain, as so much depends upon the amount of water used and the rapidity with which it is allowed to cool.



THE FRANKLIN GOWN—FRONT



THE FRANKLIN GOWN—BACK

The effect of heat on albumen has a bearing on the cleansing of dishes soiled with egg. The egg-beater or the spoon used in eating egg becomes most difficult to wash if put into hot water, while cold water used first dissolves and loosens the material. The same thing is true of the milk-bottle. Rinsed first in cold water, it becomes easy to cleanse in hot water.

(To be continued.)

THE FRANKLIN GOWN

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Having been called to several obstetrical and operative cases without due notice, I have found the need of a proper gown for such occasions.

So often with a small amount of time, a small space where we can have few tables, and no assistant given us, we are expected to have everything surgically clean. This is almost impossible with some cases. To have no one to assist, no tables or space for tables upon which to place our dressings, and yet infect neither patient nor dressings, is a difficulty that not a few nurses have found it hard to overcome.

The little improvements I have made to the gown, as shown in the illustrations, will in part remove a great deal of the difficulty.

There are no gathers at the neck, and the gown will not fall forward and sweep the floor or the surrounding furniture. But the greatest of all the improvements is in the pockets, and, as will be seen in the pictures, the pockets are made with large flaps to be buttoned down. The pockets can be used for any dressings, but in an obstetrical case I have arranged to have plain and iodoform intra-uterine packing in No. 1, the tape for tying the cord in No. 2, safety-pins in No. 3, sterilized towel in No. 5, and No. 4 to contain a vulva pad and gauze sponges. All of these can be done up in separate covers and placed in the pockets and the pockets buttoned down and all sterilized together. Thus, you see, we have overcome the necessity for tables and an assistant. If it is a case where we are to remain clean, we have our sterilized gown and all of our dressings complete, and if we are not to remain clean, we have the gown to protect our uniform, and yet our dressings remain clean and within reach of the hand, and can be taken from the pockets, and the outside cover unfastened and clean dressings handed to the operator as needed. Even where we have plenty of room and assistance it will be found to be a great convenience and to save much time and confusion.